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Health promotion for working populations

Report of a
WHO Expert Committee

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IN THE WORK SETTING**

Geneva, 9–15 June 1987

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HEALTH PROMOTION FOR WORKING POPULATIONS

Report of a WHO Expert Committee on Health Promotion in the Work Setting

1. INTRODUCTION

A WHO Expert Committee on Health Promotion in the Work Setting met in Geneva from 9 to 15 June 1987. Dr Lu Rushan, Assistant Director-General of WHO, opened the meeting on behalf of the Director-General by reiterating that the World Health Organization viewed workers' health promotion as an essential component of occupational health services. Indeed, in 1986 the WHO Regional Committee for Africa had emphasized the importance of health promotion and protection for farm workers (80), and in May 1987, the Fortieth World Health Assembly had requested the Director-General, in resolution WHA40.28, to pay due attention to workers' health programmes and to develop guidelines on health promotion in the workplace. The purpose of this Expert Committee was to review experience of health promotion for working populations, identify gaps in knowledge, and make recommendations with respect to the development of workers' health promotion programmes.

Appropriate occupational health practice requires the active participation of workers in health promotion programmes. Such participation has two advantages: firstly it ensures continuous progress in the delivery of health care and increases its impact; and secondly it leads to improvements in workers' life-style, which can be a major factor in the control of chronic disease. Programmes such as those that deal with the control of alcoholism and drug abuse, health education aimed at coping with psychosocial stress, the control of smoking, the promotion of healthy diets, and the general improvement of health through physical activity and exercise are all examples of approaches to a healthy life-style. Experience has shown that these approaches are very effective among working populations. The education of workers on health matters also helps to a great extent in the dissemination of information to members of their families, particularly to their children.

“To make work fit for man and man fit for work” is a widely accepted definition of the role of occupational health services. The main thrust of contemporary occupational health care is towards the identification and control of work-related disease and injury—the making of work “fit for man”. This is a prerequisite for promoting health. However, WHO has repeatedly emphasized that occupational health programmes should not be limited to the prevention and control of work-related hazards, but should deal with the full relationship between work and health and include general health promotion (36, 77).

As the purpose of occupational health services is to protect and improve the physical, mental, and social well-being of workers, it is natural that health promotion should be given more attention in the future. In recent years, in response to increasing recognition of the multifactorial causes of many diseases, WHO has shown a new interest in “work-related diseases”—those in which factors associated with work or the work environment contribute to the disease process (23, 77). In addition, as the concept of occupational health care has been expanded, a commitment to the overall health of the worker has been introduced.

This concept of occupational health care as embodying both health protection and health promotion has been accepted by many governments and employers. For example, the UK Employment Medical Advisory Service states in its 1983–85 report (29) that: “The workplace has come increasingly to be seen as a base for general health promotion... The distinction between disease and ill-health arising from the workplace and that arising from other causes is increasingly difficult.”

In the present report, the Committee summarizes the state of knowledge about health promotion programmes in the workplace. Experience using the workplace as a key setting for improving health has been extensive in several industrialized countries. The report reflects this fact, but acknowledges the diversity of cultural, economic, and industrial development throughout the world. Clearly both occupational hazards and overall risks to health vary greatly in societies with different levels of technology and industrial progress. Nevertheless, many of the lessons now being learned about occupational health and workplace health promotion in certain industrialized countries may have an important application for countries in the process of developing new industries.

In industrialized nations, this century has witnessed a marked change in approach to health care. In the early 1900s the most pressing health problem was the control of infectious diseases; today most problems are those of chronic diseases. Health problems related to life-style have gained a new prominence and there is a fuller understanding about the relation between occupational health matters and factors such as smoking, nutrition, and physical activity—hence the importance of health promotion in the workplace has been recognized. However, for the developing nations, the greatest morbidity and mortality still arise from infectious and parasitic diseases and malnutrition. The fundamental public health issues are those concerned with nutrition, housing, sanitation, clean water, and access to care; workplace health promotion has consequently received limited attention in developing countries.

2. DEFINITIONS OF HEALTH AND HEALTH PROMOTION

Health means not only absence of disease but also optimum physical, mental, and social well-being. According to the WHO Expert Committee on Early Detection of Health Impairment in Occupational Exposure to Health Hazards (75), “Health ... connotes rather a way of functioning within one’s environment (work, recreation, living). It not only means freedom from pain or disease, but also freedom to develop and maintain one’s functional capacities. Health develops and is maintained through interaction between the genotype and the total environment. The work environment constitutes an important part of man’s total environment, so health is to a large extent affected by work conditions.”

Health promotion has been defined as “the process of enabling people to increase control over, and to improve, their health. To reach a stage of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment... Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being” (52). Health promotion is a continuum ranging from the treatment of disease, to the prevention of disease including protection against specific risks, to the promotion of optimal health. Achieving optimal health includes improving physical abilities in

relation to sex and age, improving mental ability, developing reserve capacities and adaptability to changing circumstances of work and life, and reaching new levels of individual achievement in creative and other work. In a work setting these health indicators may be evaluated quantitatively by indices of absenteeism, job satisfaction, and work stability.

Health promotion activities can be fostered by developing healthy public policies, creating supportive environments, strengthening community action, and reorienting health services to promote health in the working population.

3. INTERACTION BETWEEN WORK AND HEALTH

The social and economic importance of work receives considerable attention, because a primary function of work in any society is to produce and distribute goods and services. Far less attention is paid to the importance of work to the individual, yet it is clear from recent research that work plays a crucial and perhaps unparalleled psychological role in the formation of self-esteem and a sense of order. Work is a powerful force in shaping a person's sense of identity. It can lend vitality to existence, and establishes the cyclical patterns of day, week, month, and year. The Committee believes that work for which there is no economic gain, such as child care, care for the aged, and voluntary work, also has its rewards and contributes to personal gratification.

There is a continuous two-way interaction between a person and his or her physical and psychological working environment: the working environment may influence the person's health either positively or negatively, and productivity is in turn influenced by the worker's state of physical and mental well-being. Work, when it is well-adjusted and productive, can be an important factor in health promotion. For example, partially disabled workers may be rehabilitated by undertaking tasks suited to their physical and mental capacities and limitations, and in this way may substantially increase their working capacity. However, the fact that work can have a positive influence on health has not yet been fully exploited; knowledge of work physiology and ergonomics needs to be further developed and applied to benefit workers' health.

On the other hand, when work is associated with health hazards, it can cause occupational diseases, be one of the multiple causes of

other diseases, or aggravate existing ill-health of non-occupational origin. In developing countries, where work is becoming increasingly mechanized, a number of working processes have been developed that treat workers as tools in production and put their health and lives at risk from a wide variety of sources. The lessons learned during the industrial revolution in other countries should now be borne in mind in planning for health in developing countries if such problems are to be avoided.

The workplace has several advantages as a location for health promotion activities and the delivery of preventive health services. For example, workers are easily accessible and environmental monitoring is facilitated, which makes it possible to control at source various environmental pollutants originating from industry.

Unemployment has its own negative implications for health. Those who have never been employed have had no chance at all to develop an identity or sense of belonging through work, which is important for psychological and social well-being. Such people are not accessible to health messages in the workplace, and may be unaware of the positive relation between work and health. Moreover, because they have a lot of free time, sometimes associated with anxiety and depression, the never-employed are more likely than those in employment to consume alcohol, cigarettes, and drugs (74).

Job loss adversely affects a worker's physiological and mental health. If unemployment persists, the person's health continues to decline and chronic disorders appear. Moreover, the mental and financial distress caused by job loss spreads to other family members (74). In a developing country, job loss can have profound effects that spread beyond the worker's own family, since where there is limited paid employment, a person in a well-paid job exerts an important influence in the community. In addition to having an obvious economic influence and high social standing, such a worker may serve as a good source of health information and set an example with a healthy life-style. Loss of employment for such a person will therefore affect the immediate community as well as the person's family.

A worker's health may suffer well before actual job loss. Indeed, both feelings of job insecurity and knowledge of impending job loss have been associated with mental and physical health complaints (17).

4. ROLES IN HEALTH PROMOTION

4.1 National governments

National governments have an interest in workers' health, partly because it has a direct influence on national productivity.

Governments are responsible for establishing and maintaining safe working conditions and ensuring through legislation that occupational health services are provided for all workers in all branches of economic activity, including those in the public sector. Health promotion programmes are not usually a statutory requirement, but occupational health services can provide a focus for their implementation.

Governmental actions may be important in creating a supportive environment for health promotion programmes. Examples include the legislation imposing strict restrictions on the consumption of alcohol at work in Nordic and eastern European countries, and the labour safety legislation of many European countries; the latter makes it obligatory for each workplace to have workers' safety representatives, who should improve workers' participation in any phase of health promotion programmes. To encourage action to improve national health, the government can facilitate the development of, and monitor progress towards, national goals, including that of improving and increasing the number of occupational health promotion programmes. For example, the United States has produced a list of "Objectives for the Nation" for 1990 (66), which identifies priority areas for health promotion and sets forth measurable objectives for health improvement. Other possible roles for governments in health promotion include: making provisions for education and training; directing health services; conducting and supporting research; providing financial support for new programmes; setting an example through programmes for workers in governmental enterprises; and setting programme standards.

4.2 Management

Those responsible for the management of a workplace have an interest in workers' health promotion for the same reason as do national governments: healthy workers are essential for optimal productivity. In addition to the humanitarian value of improving

workers' health, the economic value is therefore particularly important for employers. This is also true for self-employed workers as their productivity is often completely dependent on their own health.

The prime responsibility for health and safety in a workplace rests with the management, which therefore plays an essential role in the success of any health promotion programme. To ensure programme success, the management must allow the necessary resources and time to be dedicated to it, demonstrate its desire for employees to participate, and be willing to accept suggestions from employees on what should be done. Managers must also have sufficient appreciation of the needs for health promotion and disease prevention to be able to assess the relative merits of various programmes, determine priorities, and delegate responsibility for achieving programme success.

4.3 Workers

The worker stands to benefit from health promotion programmes by having a safe and healthy work environment, a convenient location to learn about and put into practice a healthy life-style, readily available opportunities for screening and health care, and an opportunity ultimately to achieve optimal health. Health has an all-encompassing impact on the worker's life, by affecting his or her ability to interact with others, to work, and to be self-reliant.

The worker's contribution to workplace health promotion is essential to any programme's success. Workers should be involved in the programme's design, implementation, and management; they should believe in the value of the programme and encourage their co-workers to participate.

4.4 Workers' representatives, organizations, and unions

The role of workers' representatives, organizations, and unions is to negotiate with the management to ensure the implementation of programmes that workers believe are needed, and an appropriate balance between various health promotion efforts. They can also ensure that certain principles are followed, for example that confidentiality is maintained and workers are protected against discrimination. Finally, this group is in a position to encourage the integration of health promotion activities into occupational health

protection services to provide a comprehensive approach to health and well-being for working populations.

4.5 Communities

Health is influenced by many factors outside the workplace. Thus health promotion for the workforce cannot be regarded solely as the responsibility of occupational health professionals. The community, through its primary health workers and public health professionals, has clear-cut responsibilities for individual and group health education as a means of health promotion. Wherever possible, health education programmes should be a joint activity by occupational and community health professionals. Mass media can also play an important role in health education.

In developing countries, particularly in rural areas and small workplaces, the primary health worker may be the sole provider of health protection and promotion services for both workers and the rest of the community (81).

Voluntary organizations, medical-service providers, community physicians, universities, religious organizations, and local governments can assist health promotion in the workplace by providing relevant information, conducting trials and evaluations, giving advice on the design and evaluation of health promotion programmes, and training workers to conduct programmes.

4.6 Occupational health professionals

Health promotion is an essential part of the occupational health professional's mandate. Physicians, nurses, safety officers, health educators, and primary health workers will play different roles in workplace health promotion and should be trained accordingly. For example, the role of the occupational health nurse is to educate, screen, and counsel workers, whereas that of the occupational hygienist is to assess and control health hazards, while keeping in touch with the development and progress of health promotion programmes.

Together with others, such as ergonomists, nutrition specialists, and psychologists, occupational health professionals can:

- (a) protect workers' health by controlling hazards in the workplace and by introducing ergonomics;

- (b) advise workers and managers on health promotion activities and on how to improve working conditions;
- (c) monitor the work environment and workers' health with a view to early identification of health risks and evaluation of the effectiveness of health protection and promotion programmes.

In many circumstances, in developing as well as developed countries, occupational health professionals can cover only a small proportion of workplaces and workers. In such cases, others responsible for providing health care for workers should recognize health promotion as one of their major tasks, and should receive some training in occupational health.

5. HEALTH PROMOTION AND ECONOMIC RETURNS

Generally, a combination of factors contribute to the establishment of health promotion activities in the workplace. In some countries, the primary driving force for the introduction of workplace health promotion programmes is economic; a successful programme provides quantifiable savings to the enterprise. In other countries, programmes are introduced predominantly for social reasons, as part of national policies for health. In yet others, there are statutory requirements for regular medical examinations of all workers, or of specific occupational groups, at which informal discussions about life-style may take place, but planned health promotion programmes are rare.

Health promotion programmes will be most often assessed for effectiveness and publicized when economic forces demand this. This does not imply that the Expert Committee believes that economic justification is paramount. Examples of programmes effectively evaluated on non-economic grounds are also necessary to encourage the global development of workplace health promotion. Many more studies need to be undertaken to assess the positive value of workplace health promotion in terms of improved health and healthy behaviour, reduced health care costs, less frequent disability, increased productivity, reduced absenteeism, and reduced turnover of employees. Concrete evidence is, however, difficult to obtain because such studies are methodologically complex, organizationally difficult, and, in some ways, ethically controversial.

There are, nevertheless, many indicators of the positive economic effects of health promotion programmes in the workplace. As more

results emerge, more studies are conducted, and interest in employees' health promotion grows. A 1983 survey of managers and union leaders found that 60% felt that workplace health promotion could improve employees' health and reduce long-term costs (65).

In assessing the economic implications of health promotion at work, it is important to examine more closely the nature of the costs incurred by health care for workers and by lost productivity and absenteeism due to illness or injury.

5.1 Health care costs

Illustrative of the considerable economic burden imposed by health problems is heart disease, the leading killer in many industrialized countries, which is estimated to cost US\$965 per worker per year in the United States.

There can be no doubt that health care for employees represents a huge financial outlay, whether by state, employer, or employee. It is not yet clear to what extent health promotion programmes in the workplace can reduce these costs as well as improve employees' health. Positive results are, however, beginning to emerge from some studies. In one five-year follow-up study of workers enrolled in a physical fitness programme, it was found that health care costs were reduced by 24%, with long-term savings 50% greater than investment (10). Another study, of a comprehensive health promotion programme offered at the workplace to nearly 4000 workers in a large organization, showed that benefits in the form of declining medical care costs began to emerge 12 to 18 months after the programme's introduction. By the fourth year, the annual increases in health care expenses for those workers participating in the health promotion programme were running at only about one-half of those for a control group (9). Unfortunately, most other studies conducted so far have either had too short a follow-up time or lacked an adequate control population.

5.2 Productivity, absenteeism, and turnover of workers

In addition to the high costs of health care for employees, there are substantial costs arising from lost productivity and absenteeism. Because of injury or illness, roughly 4% of the registered workforce in the United States is absent one or more days each week. Absenteeism rates in the United States are 50% higher for smokers

(48) and 100% higher for overweight employees (2). Efforts to reduce these health problems will help reduce absenteeism. In fact, substantial reductions in days absent from work have been reported for workers participating in smoking cessation programmes (50), exercise (6), and "employee assistance" programmes (5).

Indeed, reduction in absenteeism is the benefit most commonly cited by the organizers of health promotion programmes. For example, over three years, employees participating in the programme set up by the large organization mentioned above (9) had a 30% lower absenteeism rate than employees from non-participating sites, in spite of the fact that participants started with a 20% higher rate. Workplace health promotion programmes can also reduce the turnover of employees, by improving their morale and their attitudes towards management. Indeed in many cases, this positive effect is cited as a principal reason for sponsorship of health promotion efforts by the employer. However, turnover rates of employees have rarely been measured as part of programme evaluation.

6. OPPORTUNITIES FOR HEALTH PROMOTION

Disability, disease, and death can be viewed within the framework of the four main "health fields", which are human biology, environment, life-style, and health care organization (35); each health problem is affected by factors from one or more of these elements. This division into four elements, when applied to occupational health, can be very useful in identifying preventable problems and their contributing factors. With regard to workplace health problems, it is important to identify both those whose causes include work activities or exposures, and those that have other causes but may be effectively screened, treated, or reduced in severity through interventions in the workplace.

In industrialized countries, the major causes of morbidity among workers are respiratory, musculoskeletal, mental, and circulatory; additional causes in developing countries are malnutrition and communicable diseases. It would be possible to catalogue each disease and its risk factors here, but health promotion is essentially concerned with the modification of life-style and living conditions to increase well-being. Indeed, life-style, particularly among the affluent, and social and environmental conditions, particularly

among the less affluent, may powerfully inhibit the development of a state of well-being. It is thus more instructive to examine problems associated with life-style and living conditions to determine where health promotion in the work setting will provide the best opportunities for effective action.

To illustrate the opportunities for health promotion, the Committee selected a number of activities that have featured in workers' health programmes in several countries. Some of these represent preventive rather than promotive health activities, for example those aimed at the cessation of smoking and the control of alcohol and drug abuse. However, they are included here because health personnel have relatively little experience of dealing with such matters in working populations, and the activities exemplify the type of approach appropriate to health promotion in the workplace.

Since experience of workplace health promotion has been most extensive in industrialized countries, many of the examples given here are drawn from these countries. The specific problems encountered by workers in developing countries are discussed in section 8.

6.1 Tobacco smoking

6.1.1 The problem

During the 20th century, tobacco smoking and smoking-related diseases have spread rapidly. In both industrialized and developing countries, about half the men are dependent on tobacco, cigarette smoking being the preferred habit. Although the prevalence of tobacco dependence among women is variable, the general trend is one of increase (76).

Smoking is a risk factor for cardiovascular diseases, lung cancers, and respiratory diseases, and in working populations it is associated with increases in accident and sickness absence rates. Smoking also compounds the risk of lung cancer in specific occupational groups such as those in the chromium, nickel, and asbestos industries. In uranium and asbestos workers, it has a multiplicative effect (48-51). A uranium miner who smokes is six times as likely to develop lung cancer as a non-smoking counterpart, and an asbestos worker who smokes is ten times as likely to die prematurely as a non-smoking co-worker (50).

Smoking has been identified as the single most important risk factor for disease and premature death in the United States (50). In industrialized nations, for the majority of workers who smoke, cigarette smoking is a much greater cause of death and disability than is their work environment (50).

In the United States in 1985, an estimated US\$26 000 million was lost in productivity because of smoking and another US\$16 000 million was spent on smoking-related medical costs, about half of which was paid by industry (71). This reflects the fact that workers who smoke are about 1.5 times as likely as non-smokers to be hospitalized. Most studies have concluded that smokers cost their employers several hundred dollars a year more than non-smoking counterparts.

Recent evidence suggests that it is not just the smoker who is at risk from smoking at the workplace (76). Epidemiological data indicate that involuntary exposure of non-smokers to exhaled or sidestream tobacco smoke from nearby smokers increases their risk of developing lung cancer, cardiovascular disease, and respiratory disease (76).

Smoking is more common in people suffering from tension and anxiety (67) and is most frequent among employees exposed to occupational stress (62). Inability to stop smoking has been reported to be related to job stress and a high workload (15), when a cigarette may be thought to provide relief from tension.

6.1.2 *Control measures*

For some years, efforts have been made to discourage cigarette smoking. The failure of many programmes has taught much about the ineffectiveness of simple exhortation and about the need for continuing action and support.

Interest in the development of workplace-based no-smoking programmes and policies continues to increase. Many enterprises are sponsoring smoking-cessation programmes, offered on-site or in the community, and are restricting smoking in the workplace. Restrictions or bans on smoking have also been implemented to protect non-smokers. Most reports of the results of workplace smoking-cessation programmes are brief, but they suggest successful one-year cessation rates of 20% to 50%, and six-month cessation rates of 30% are relatively common (49). Persistence seems to help, as indicated by one study that achieved only a 25% cessation rate on

the first attempt, but eventually—by the fourth try—nearly 75% of all participants had successfully stopped smoking.

As information about the adverse health effects of tobacco smoke accumulates, attitudes about on-the-job smoking are changing. There is now less resistance to attempts to discourage smoking in the workplace. A 1983 nationwide survey in the United States found that 82% of non-smokers, and even 55% of smokers, felt that individuals should refrain from smoking in the presence of non-smokers. On the issue of restrictions on smoking in the workplace, 87% of non-smokers favoured either designated smoking areas or total prohibition of smoking, as did 75% of smokers (3). Similar rapid changes in attitude are also occurring in Scandinavia and the United Kingdom.

Organizations, such as the World Health Organization, that have successfully introduced a total ban or restrictions on smoking have based their actions on a gradual reduction in smoking on work premises, together with health education to help smokers to stop smoking and to accept the restrictions.

Attitudes may not be as receptive in countries with a high percentage of smokers in the population as in those with a low percentage, but the potential for improving health is substantial. The benefits accrued as a result of smoking-cessation programmes include a healthier workforce, increased productivity, less frequent absenteeism, longer-lasting equipment, fewer fires, and lower insurance premiums.

6.2 Physical activity

6.2.1 The problem

The problem of inactivity can be demonstrated by the benefits associated with exercise and physical activity.

Exercise affects a range of physiological parameters. Regular exercise has been shown to help reduce body fat and overall weight, reduce blood pressure, slow the resting heart rate, lower levels of blood lipids and increase those of high density lipoprotein, improve glucose metabolism and reduce insulin requirements, and decrease platelet aggregation (33). Exercise has also been shown to improve health prospects in various ways. Studies from several countries indicate a favourable effect of exercise on the incidence of heart disease (53) and stroke (60). Work-related activity may also benefit

health: studies comparing London bus drivers with conductors (39), stationary Israeli workers with more mobile field and industrial labourers (11), and San Francisco longshoremen with clerks and foremen (54) have shown a twofold to threefold difference in deaths from cardiovascular causes between the active workers and their more sedentary counterparts.

Most active people also suffer less than inactive people from chronic obstructive pulmonary disease, diabetes (28), and osteoporosis (44). In addition, it has been suggested that the improved strength, balance, and flexibility resulting from participation in exercise programmes can reduce the probability of injurious falls among older people, as well as back injuries among certain occupational groups (14, 34). From an occupational health perspective, the latter is particularly important since 93 million work-days in the United States are lost annually as the result of back problems, and the overall costs are greater than for any other category of occupational injury (79).

In addition to physical benefits, exercise may have psychological rewards. Those who exercise regularly have reported reduced anxiety and depression, improved mood and self-esteem, and a better sense of self-control (63).

The benefits of exercise may lead to reduced absenteeism. For example, studies in the USSR have shown that physically active workers miss fewer days through respiratory and non-respiratory diseases than those not engaged in physical activity (21). Indeed, those who are not physically active are ill five to eight times as often as those who exercise.

6.2.2 *Control measures*

Work itself may require physical activity. Agricultural and construction work, for example, involve extensive physical labour. There are, however, many jobs that impede physical activity by their sedentary nature. For this reason, many workplaces are establishing programmes to encourage exercise.

In 1985, in roughly 22% of workplaces with more than 50 employees in the United States, efforts were being made to promote exercise and fitness among workers (47). The type of action taken by employers varies greatly from place to place. In some cases, it is limited to the provision of pamphlets, posters, and an occasional seminar; in others it includes promoting employee-run exercise

classes or sponsoring employees' participation in community-organized programmes. Some corporations have elaborate gymnasiums on-site with special incentives for employee participation. Exercise breaks to reduce the physical strain of maintaining a work position have been introduced in many countries.

The results available from evaluations of workplace exercise programmes are favourable. Participating employees have been shown to have significantly lower rates of absenteeism (6) and job turnover (20). They also experience improvements in various physical parameters, for example in muscle strength. A question remains concerning the extent to which short-term changes can be sustained over time, but a recent two-year follow-up study of participants in a "public health model programme" (aimed at all employees at the workplace) found significant and maintained decreases in average energy expenditure for a given task, in body weight, and in blood pressure (7).

Exercise has been found to be self-motivating. Many workplaces have their own sports teams, which contribute to the improvement of both morale and physical health in workers. In some countries, sports facilities are provided by employers for use during leisure time and can prevent negative behaviour such as excessive drinking and gambling.

6.3 Nutrition

6.3.1 The problem

Nutrition plays an essential role in health and in workers' productivity. Factors generally related to dietary excess are associated with several of the leading causes of death in most developed nations: cancer, heart disease, arteriosclerosis, and diabetes. Weight loss to reduce obesity can decrease blood pressure (56) and blood cholesterol levels (24), which can in turn reduce the risks of the above-mentioned diseases. For example, each 1% drop in blood cholesterol concentration has been shown to produce a 2% decline in death rates from heart attacks (41).

Such changes can have very real effects on national health profiles. For example, in the United States, the number of deaths from cardiovascular causes declined by 39% from 1963 to 1983, with as much as 30% of that decline attributed to dietary improvement

(27). As cardiovascular disease is still the leading cause of morbidity in the United States and 15% to 20% of the working population is estimated to be at least 20% above ideal weight (42), there is still a strong potential for improving the health of workers through weight loss programmes. Excess weight has been shown to affect productivity among diabetic people: those who are 40% overweight have twice as many days absent from work as those with normal weight (2).

Malnutrition and undernutrition resulting from an energy demand that exceeds nutritional intake can also cause significant health problems and decrease the productivity of individual workers. Poor nutrition may be related to cultural patterns, poverty, or unavailability of a sufficient or balanced food supply.

6.3.2 *Control measures*

The workplace can have a significant influence on the dietary habits of workers, and this influence can extend to their families. Food that is made available at the workplace can be tailored to the nutritional needs of the population. In some cases, this may mean a choice of food of low energy content to encourage weight loss, while in other circumstances meals with a high energy content consistent with work demand will be more appropriate. Where poverty, unavailability of food, or lack of knowledge about balanced diet are causes of nutritional deficiencies, free food or balanced meals and nutrition education should be part of health promotion programmes for workers. Providing a well-balanced diet consistent with energy demand is particularly important for workers such as those who live on board ships for long periods of time.

A wide variety of nutrition programmes is offered by employers in industrialized countries, including programmes for weight control, cholesterol reduction, prenatal nutrition for pregnant women, and “heart healthy” nutrition (2). In addition, some organizations have made changes in the work environment, such as offering healthier food choices, changing food presentation to encourage healthy choices, providing health information where food is available, placing weighing scales in rest-rooms, and changing the types of food placed in vending machines (65).

As weight control is a significant problem in industrialized countries, programmes to reduce workers’ weight are becoming increasingly prominent. The participation of employees in weight

management or nutrition programmes has been reported to be fairly high, and although there has been little formal evaluation of such programmes, those evaluated so far appear quite promising. A review of 27 such programmes found that the average participant lost 2–8 kg, with longer programmes yielding a greater loss (26), and that 40% to 70% of those who enrolled completed the course. Weight loss competitions—which are less demanding in terms of regular attendance—appear to have low attrition rates, with 70% to 100% of participants completing the competition, and positive results in terms of successful weight loss. Such weight loss competitions are cost-effective as well, since they rely heavily on group support and personal motivation (2). Efforts to reduce blood cholesterol levels, through education and an emphasis on low-fat diet, exercise, and weight loss, have yielded reductions of 9% to 17% (12).

Experience has shown that the family has an important effect on the worker's diet, since family members often select and prepare the worker's food. If the worker controls the family's finances, his or her belief in the value of a balanced diet may also influence the family.

6.4 Alcohol

6.4.1 The problem

The use of alcohol underlies many of the most serious accidents causing personal injury and disability in workers. In certain industrialized countries alcohol is involved in over 50% of deaths caused by motor vehicles, and in 55% of homicides, 28% of episodes of marital violence, 40% of suicides, 18% of burns, and 23% of falls (58). It has been estimated that alcohol contributes to 57% of all occupational injuries in the United States and to 75% of occupational injuries to workers who have had one or more previous injuries at work (5). One study, in which blood was sampled randomly from victims of fatal job-related injuries between 1962 and 1970 in the Federal Republic of Germany, indicated that 40% of the victims had blood alcohol concentrations of greater than 500 mg/litre (70).

Alcohol-related losses in productivity can be substantial. In industrialized countries, workers with alcohol problems have absentee rates that are markedly higher than those for the rest of the workforce, and their use of health care services is three to eleven

times as high (72). In the United States, where it has been estimated that 5% to 10% of employees are alcoholics or have serious alcohol-related problems (43), problems related to alcohol are calculated to cost approximately US\$116 000 million annually, including direct medical treatment costs and costs associated with accidents and lost productivity (15).

The reasons for alcohol use and abuse are cultural, social, and psychological. There is wide variation from one society to another in the patterns and habits of drinking as well as in the type of beverage consumed. Social forces in the society as a whole or in subpopulations dictate levels of alcohol consumption, both through restrictions on availability and through established customs.

The clinical view of alcohol use and abuse emphasizes the causative importance of emotional conflicts and adverse psychosocial factors (38); according to this view, alcohol is consumed to reduce feelings of stress and its reinforcing properties sustain continued use. Certain occupation-related factors seem to place particular workers at greater risk of alcohol abuse and related health problems, for example unrestricted alcohol availability (as for bartenders and innkeepers), customs within the work group, or exposure to adverse psychosocial conditions (38).

6.4.2 *Control measures*

Some of the earliest forms of health promotion for employees, beginning in the 1940s, were prompted by the concern of employers about alcohol abuse (22). Often, in the past, the response to identification of a problem was dismissal of the employee. Such punitive action often served only to reinforce the tendency to hide the problem, yet it remained the prevailing response until relatively recently. Over the last decade, there has been a shift in attitude, and it is becoming increasingly rare for employers in the United States to report job dismissal as a preferred course of action.

The workplace has great potential for the control and prevention of alcohol use/abuse for the following reasons:

- (a) most problem drinkers are part of the workforce;
- (b) excessive alcohol use is identifiable at an early stage by a drop in work performance;
- (c) the possibility of job loss can be used to motivate changes in drinking behaviour; and

(d) the workplace provides a unique opportunity for support and assistance from co-workers.

Early identification of alcohol-related problems and intervention are now emphasized. It has been estimated that over 10 000 work establishments in the United States offer some type of assistance for alcohol-dependent employees (13). A similar trend is apparent in the United Kingdom (69). Programmes vary, but tend to include (a) the production of a set of explicit, written policies and procedures that outline the purpose and function of the programme, (b) barring of on-site sale of alcoholic beverages, (c) training of managers to help them identify problems emerging in employees, (d) sponsorship of employee self-help groups, (e) referral to community intervention programmes, and (f) the adoption of an explicit policy on confidentiality of information about employees.

Evaluations of employee assistance programmes dealing with alcohol-related problems indicate that they have uniformly positive effects on several variables. Work performance returns to an acceptable level after treatment for an impressive 50–70% of participants in these programmes (4, 25). In a recent interview and questionnaire survey of 480 enterprises with employee assistance programmes, “success” rates (in terms of favourable results) ranged from 60% to 68% (8). Cost-saving studies have shown similarly positive and impressive results (25): participation in employee assistance programmes can result in less frequent absenteeism and can reduce health care costs and those related to employee disability.

Other important ways of dealing with alcohol-related problems include identifying and taking steps against predisposing factors such as boredom, financial problems, and job stress, and providing access to broad-scope intervention services, which may help remove the stigma associated with substance abuse. The advent of comprehensive occupational health promotion activities may improve services for employees with alcohol-related problems. Such an integrated approach may improve the employee’s attitude towards the employer and reduce fear and suspicion of intervention efforts.

6.5 Drug abuse

6.5.1 *The problem*

Drug-related problems are also inflicting increasingly heavy burdens on employers. In the United States, an estimated 20% to 30% of those aged 18–25 years have used cocaine at least once, and in 1980 current use of a psychoactive substance was reported by 17% of those under 30 years and 28% of those under 20 years (45). Most of these young people are part of the labour force.

Drug users have more job-related accidents, take more sick leave, cause more equipment damage, and are responsible for more crime than non-users. Drug-using employees were reported in one study to make 15 times as many visits to private physicians, have 25 times as many days absent from work because of disability, and suffer twice as many injuries as non-users (78). In another study, drug-using employees were found to suffer on-the-job injuries four times as frequently as the overall working population, to be absent from work two to three times as often, and to submit compensation claims five times as often (19).

Drug addiction exists “when a person’s attachment to a particular drug or medicament is such as to lessen his appreciation of and ability to deal with other things in the environment or in himself so that he has become increasingly dependent on the drug as a source of gratification” (30). Major elements of drug addiction include tolerance, withdrawal, and craving. Tolerance refers to the decreasing effect of a drug with repeated administration. Withdrawal involves a physical disturbance, with symptoms of anxiety and depression, psychosomatic manifestations, and even convulsions when the drug is withdrawn or its use stopped. Craving refers to the strong desire to continue taking the drug and reflects the development of psychological dependence on the drug. As with alcohol abuse, drug abuse starts with use for relaxation or pleasure; if drug use continues, however, there may be a transition from use to abuse. Drug abuse may cease or be controlled, but there is always the possibility of a relapse.

Although drug abuse affects many workers, there is limited information on the extent of the problem in different parts of the world. Abuse of drugs includes addiction to a wide range of medicaments, for example to tranquillizers and hypnotics originally required to control anxiety and sleep disturbances, as well as the use

of narcotics. There is evidence that, once a worker becomes addicted, general tolerance to stress and disease is lowered, work ability is impaired, and the person suffers from diminished self-esteem.

6.5.2 *Control measures*

Drug addiction should be dealt with as: (a) a disease process that is identifiable and progressive and responds to specific treatment; (b) a biological disturbance associated with increased levels of the enzymes needed for drug metabolism and tolerance of high doses of the drug; and (c) a psychosocial anomaly that can be handled with psychotherapy and medical intervention, social support, and the control of stressful environmental factors.

A general approach to the problem of drug addiction in the workplace, taking into account these three aspects, includes:

- (a) repairing the social and health damage caused by drugs and treating withdrawal symptoms;
- (b) restoring the self-esteem of affected workers by group therapy and social support;
- (c) warning workers who have recently stopped drug abuse that even one further episode of drug-taking may lead to a relapse; and
- (d) offering those affected a non-chemical substitute for the abused drug, for example a social activity and physical exercise.

Approaches that are successful in treating alcohol problems in workers may, with some modification, be equally useful for treating the problems of drug abuse. In addition to control measures, action may be taken to prevent drug abuse, for example through education about its dangers and restrictions on the prescription of tranquilizers and hypnotics.

6.6 **Adverse psychosocial factors**

6.6.1 *The problem*

Stress related to adverse psychosocial factors is a problem that extends across age, socioeconomic, and geographical boundaries. General practitioners in the United States estimate that 70% to 90% of the health problems presented to them are related to excess stress

(46). The key is distinguishing between the type and amount of stress that offers a stimulating challenge and that which presents an unreasonable threat to health. It has been estimated that, in a given year, 25% of the United States population experiences *severe* emotional stress (55) and that it is an active problem for at least 5% to 10% of the workforce (31).

Adverse psychological factors may be encountered at work and at home. In the working environment, these factors include work overload and underload, poor job management, lack of job security, monotonous tasks, and shift work (32). Adverse psychosocial factors in the home environment include problems relating to family circumstances, economic conditions, and overall sociopolitical structure.

These adverse factors are stressors, stimuli that impose detectable strains that cannot readily be accommodated by the individual and can produce psychological, physiological, and behavioural reactions. Psychological reactions associated with adverse psychosocial factors at work include anxiety, depression, low self-esteem and morale, anger, and dissatisfaction. Physiological reactions include increased secretion of epinephrine, norepinephrine, cortisol, and other hormones, elevated blood pressure, increased levels of blood cholesterol and of gastric secretions, and changes in metabolism (32). Impaired performance, excess use and abuse of cigarettes, alcohol, and assorted drugs, and impaired interpersonal relationships are common behavioural reactions to stress (40).

In addition to these strain reactions, chronic conditions such as high blood pressure, ulcers (18), and insomnia (32) have been associated with unresolved stress. Recent research suggests that the experience of stress, even for short periods, reduces the efficiency of the body's immunological system (32).

The workplace has been identified as a prime source of stress. In particular, stress can result if workers fail to:

- (a) have some degree of influence and control over their work;
- (b) perceive the product of work as meaningful and worth while;
- or
- (c) feel an affinity with the work group as a social support system and identify with it through their work.

In a recent survey in the United Kingdom (73), stress management was seen by trade unions and employers as a major priority in the prevention of illness and in health promotion at the

workplace. The implications for employers are substantial. Not only do stress-related problems cause absenteeism and reduce productivity, but they increase the cost of medical insurance claims and workers' compensation. In 1980 in California, 50% of claims by workers for compensation were for stress-related disorders, and an estimated one-quarter of all medical insurance claims by employees are for emotional illness.

6.6.2 *Control measures*

Many of the adverse psychosocial factors in the work environment can be controlled through appropriate evaluation and intervention. Those related to the home environment are less amenable to control, and people need guidance and training in coping with them.

Reductions in adverse psychosocial factors in the work setting serve to protect workers' health and well-being but such steps alone cannot fully eliminate stress. Health promotion programmes are needed to heighten knowledge and awareness of stress and train workers in coping skills. Stress management programmes achieve this by combining education with training in muscle relaxation, meditation, and biofeedback.

Surveys of workplaces in the United States have indicated a steady increase in the percentage that offer workers some type of stress management training. A study conducted in 1985 of companies with more than 50 employees found that 27% of workplaces surveyed had implemented some type of stress management programme and, for those without programmes, stress management was a high priority in future plans.

Research has indicated that participation in stress management programmes is associated with reduced anxiety and depression, less frequent health complaints and sleep disturbances, and reduced blood pressure (1), muscle tension, and levels of circulating stress hormones (40). Workers commonly report improvements in their ability to cope with stress after training, and there are indications that health clinic visits and health care costs decrease (16). By and large, these programmes have been evaluated over very short post-training periods so that the long-term benefits are unknown (40).

The introduction of stress management programmes in many workplaces is encouraging, but opportunities exist for improvement. Examples include: (a) linking stress management programmes with

interventions aimed at improving psychosocial conditions at work; (b) integrating stress management into other health promotion programmes to create a unified and holistic approach to health promotion; (c) identifying the most effective techniques for managing stress; and (d) identifying ways of motivating workers to maintain stress management skills over long periods.

6.7 Ergonomics

6.7.1 The problem

The progressive mechanization and automation of industrial processes make it essential to pay attention to ergonomic factors in the workplace. Ergonomic problems related to worker/machine interaction, working position, the suitability of instruments to the physical and physiological characteristics of the worker, psychosocial factors, and environmental conditions (heat, cold, noise, air pollution) may affect workplaces in any country and can influence workers' health.

Musculoskeletal syndromes such as "tension neck" and low back pain are a major cause of absenteeism, partial disability, and the granting of disability pensions for people of working age. These syndromes have many causes (64), but ergonomic problems can contribute to their development.

Ergonomic problems are especially relevant to women, because the traditional principles of job design and ergonomics were developed for adult male workers; these principles may be inappropriate not only for women but also for partially disabled, older, and younger workers. Body dimensions are an important consideration in machine design for optimal work performance. Industrial and agricultural processes and machinery are often designed to suit adult male workers, but women and young workers are generally smaller than men, which makes it difficult for the former groups to operate much of the machinery in use in many countries, particularly for agricultural work. Such difficulties may be associated with accidents and fatigue.

6.7.2 Control measures

One of the goals of ergonomic research is to develop "a kind of eternal triangle among efficiency, comfort and health" (68), which links it closely to workers' health promotion.

The most common health problems whose incidence can be reduced by ergonomic improvements at the workplace are the musculoskeletal disorders. Indeed, ergonomic shaping of work and work performance has been at least partly effective in counteracting this type of morbidity (82). However, additional health promotive efforts are necessary, especially since musculoskeletal problems have become the main form of morbidity among working populations in many countries (64). This means not only improving ergonomic conditions at work, at home, and in environments where leisure time is spent, but also attempting to modify human behaviour.

Methods used in physical medicine have had limited success in decreasing the occurrence of musculoskeletal disorders. During recent years, attempts have been made to attack these problems through relaxation courses, pain management courses, and neck or lower back "education", especially in the Nordic countries of Europe. Such courses offer a new approach to decreasing musculoskeletal morbidity and symptoms like pain, but the Committee was not aware of any systematic evaluation of their effectiveness.

Courses on neck or lower back pain are intended to teach people about the structure and physiology of the musculoskeletal system, the active training needed to sustain optimal musculoskeletal function, and the best ways to avoid straining the neck and back at work. Such courses also increase awareness of the physiological, psychological, and social factors behind pain reactions.

Because of anthropometric differences between people in various parts of the world, programmes established in Europe and North America to reduce ill-health caused by ergonomic problems are not necessarily directly transferrable to other parts of the world. In addition, pain experienced is very much dependent on local cultural factors. Programmes should therefore be designed to meet local requirements.

Opportunities for health promotion through the reduction of ergonomic problems are especially numerous for certain groups of workers, such as women and the partially disabled. For example, several studies have been performed to determine the physical loads that might be considered acceptable for women workers (57). The findings suggest that "permissible" physical loads may need to be defined for women in accordance with the type and conditions of work, and with environmental variables like heat stress.

The further development and evaluation of methods of assessing physical working capacity are desirable. A policy of using such methods at pre-employment examinations would give women and men equal opportunities of being selected for jobs for which they are physically capable and would minimize the possibility of work-related injury. Ergonomic changes to allow the adaptation of machinery and tools to the needs of women and young workers are also advisable, and would help to prevent fatigue, increase job satisfaction, and promote health.

7. PLANNING, IMPLEMENTATION, AND EVALUATION OF WORKPLACE HEALTH PROMOTION

7.1 Approaches to planning

In both industrialized and developing countries, the workplace provides a strong starting point for health promotion, for several reasons. Working groups are accessible. The first contact workers have with health services is often with those based at the workplace and, given the correct information about potential health hazards, workers are more likely to consult at an early stage. Continued contact with the staff of occupational health services makes possible an ongoing programme of prevention, health promotion, follow-up, and reinforcement of health education, and the linking of preventive and curative strategies to stress the benefits of prevention. Additionally, work establishments that run health promotion programmes may derive economic benefits from the reduction in unnecessary sickness and disability and less direct benefits from the image of employers as caring and responsible (73).

Some of the most important opportunities for health promotion, including health education, are in changing personal habits (for example discouraging smoking, excessive drinking, and drug abuse), modifying diet, and increasing physical activity. However, several recent studies have shown the difficulties of directing workers to alter their life-style (37, 59). If a health promotion programme is to have any impact on health, it should firstly address those problems for which its effectiveness can be demonstrated. Weak or ineffective planning may make programmes aimed at reducing smoking and related health risks or promoting a healthier diet unworkable, and

may detract from the credibility of other, potentially more effective programmes.

Three elements are desirable in any strategy for health promotion. Firstly, the strategy should start with what is feasible, using any success to build up momentum and credibility for further health promotion activities. For example, for populations who are aware that the risk of being poisoned by pesticides is aggravated by smoking, a message about the harmful effects of smoking alone may be appropriate. The point of this approach is to avoid health education being regarded merely as the repetition of codes of behaviour with which workers do not easily identify.

Health promotion programmes may start with already established activities, such as the early diagnosis and treatment of various health problems, immunization, and the modification of working conditions (changing work hours and content, introducing job rotation, etc.). Such activities are appropriate for the workplace in both industrialized and developing countries, where they may form part of the primary health care programme.

The second desirable element in a health promotion strategy is a link with procedures for evaluating its results and monitoring how well it is received in the local setting. The strategy can then be modified to increase its usefulness, or be replaced if necessary. Techniques for studying attitudes, beliefs, and practices have developed substantially over the past decade; these and other methods can be used to investigate educational and cultural factors as well as health in a given population, so that health promotion activities can be planned appropriately. For example, where illiteracy and multiple languages are prevalent, health messages will need to be communicated through media other than writing.

Monitoring activities are useful not only for evaluating the health promotion programme, but also for encouraging the participation of workers and for helping to develop new concepts concerning the interaction between work and health. Participation by workers may be limited by political influences, but may include consultation (for example with workers' representatives or more experienced workers) and structured involvement by means of formal questionnaires or question-and-answer sessions. The most successful and persuasive programmes are based on the thorough understanding of those to be involved.

The third desirable feature of any health promotion activity in the workplace is that it should be seen as a dialogue, a type of

negotiation, and not as a mandatory process. Those planning a health promotion strategy should attempt to visualize their activities from the point of view of the workers: for those faced with a barrage of information challenging several practices and habits, with sternly worded or emotionally provocative messages, rejection may become a common response.

The success of health promotion by intervention depends on some improvement in health being noted or measured. If this occurs, and places of employment are seen as important in the local community, a multiplicative effect may result as people outside the workplace see workers adopting and benefiting from health promotive activities.

7.2 Planning

The way in which a health promotion programme is developed will vary with the needs, conditions, and interests of the particular workplace or employee group. However, there are certain common requirements: involving the workers themselves in planning the programme, assessing the needs and interests of the workforce, identifying available resources and expertise, establishing priorities for implementation, and selecting criteria for monitoring the programme's effects and evaluating its efficacy.

Planned health promotion programmes should be discussed by a tripartite health and safety committee in the workplace, made up of workers, employers, and government representatives, since the involvement of all concerned with occupational safety and health is essential. Health promotion programmes require the participation of employees to be successful, and therefore should have the benefit of input from employees in their design, when possible. At times, the establishment of an employees' advisory group can help towards this aim. Without the assistance of employees, there is the risk of introducing programmes of marginal interest and relevance.

Another important early step in planning a health promotion programme is to develop a profile of the needs and interests of the particular workplace. Each employee group is exposed to different risks and conditions and has different concerns; and each workplace has different work methods and challenges. Information on these variables can be obtained informally, through wide consultation, or formally, through workers' unions and representatives or by the use of scientifically developed survey methods.

Information about workers' health and environmental hazards should be collected for use in planning and evaluating the programme, and as a tool for motivating workers to improve their health. In addition, some scientific means may be used to identify positive factors in the way work is organized in the particular workplace to provide for basic human needs. Worker turnover and absence rates, if low, may be used as indirect indicators of well-being (61), and if high, may help to identify certain groups, such as migrants, as requiring special attention in the health promotion programme. In general, however, special studies will be needed to gain insight into factors that can play a role in health promotion. The structured questionnaire is useful in this respect for measuring specific attitudes to and beliefs about working conditions.

7.3 Implementation

The following principles are important in the implementation of any health promotion programme in the workplace:

- (a) ensuring that all workers have an equal opportunity for full participation;
- (b) giving priority to individual choice;
- (c) balancing the programme with health protection activities; and
- (d) assuring confidentiality.

A health promotion scheme should be addressed to all employees. It should seek broad accessibility and involvement, regardless of the work category or income level of the employee. However, the nature of the workforce or the availability of resources and expertise may require that the programme is started as a pilot scheme for a specific subgroup of employees, and is only later gradually phased in to include other groups. It is desirable to reach full workers' participation from the beginning. Participation should be voluntary, with exceptions for such cases as a no-smoking policy to protect non-smokers, and the mandatory wearing of seat-belts in vehicles driven by employees.

The implementation of health promotion programmes in the workplace should reinforce, rather than detract from, health protection efforts such as occupational hygiene and safety programmes. Everyone has the right to work in an environment safe from physical, chemical, psychosocial, and biological hazards. It is

therefore essential for employers to maintain and strengthen activities designed to protect workers' health as well as to introduce health promotion activities. These activities should be complementary, aiming at the same goal of improved workers' health.

All participants should be assured of the confidentiality of their health records. Individual behaviour is a personal matter, and information on an individual's health profile and on progress made through participation in a workplace health promotion programme should be treated with the confidentiality accorded to any relationship between health professional and patient. Such information should be maintained by personnel independent of the employee's supervisors and of decision-makers on the management. Employers and employees alike will benefit if it is clear that the health promotion programme is designed only to improve the health of participating employees.

7.4 Evaluation

One of the important needs for any workplace health promotion programme is a careful evaluation of the programme's progress and outcome. Evaluation should be a periodic activity, and should include a comparison of participants' health risks and health status and other parameters with baseline data collated at the planning stage. When evaluation demonstrates that the programme is acceptable and successful in reducing health risks, its coverage can be widened and other health promotion activities included. Otherwise, the original plans should be revised in the light of the experience obtained.

Most employers are not in a position to do the carefully structured randomized and controlled trials desirable for scientific validation. However, at a minimum, efforts should be made to monitor progress, with periodic assessment of how effectively the employees at highest risk of health problems are being reached, and recording of employees' responses and suggestions for improvements. For large-scale employers—with better data-processing and monitoring capabilities—baseline information should be carefully recorded on risk factors, health, productivity, absenteeism, and cost. Anticipated outcomes should be clearly identified in terms of these variables, and actual results quantified. Where possible, appropriate reference groups should also be identified and monitored—workers in these groups should be

matched with participants in the programme on every possible variable, including level of risk, and should not simply be employees who decide not to participate. The results of these more formal evaluations can do much to improve programme development and contribute to a broader understanding of the potential for workplace health promotion.

Information about workers' health can be obtained periodically or at a single point in time. Sometimes data are routinely collected in hospitals, health centres, and workplace first-aid posts, but specially collected data are necessary for evaluating specific health care services, such as health education programmes, and environmental control activities. Such data may include information about attitudes to work, personal habits (smoking, diet, alcohol, etc.), symptoms of health problems, organ system "screening", and exposure to harmful substances.

8. DEVELOPING COUNTRIES AND HEALTH PROMOTION THROUGH PRIMARY HEALTH CARE

In the many developing countries with agriculture-based economies, up to 90% of the economically active population may be engaged in subsistence agriculture. Some developing countries are industrializing rapidly, but even in these up to 50% of the enterprises are small-scale, employing less than 50 workers, sometimes in cottage industries or in the home. This means that most workers in developing countries are in the underserved sectors as far as occupational health care is concerned.

Where small factories exist, they are usually scattered throughout the developing country and are the mainstay of the nation's industry. Workers in these small factories usually have to face both the health problems that afflicted developed countries in the past and new health problems resulting from technology transfer from industrialized countries. They may have more hazardous working conditions than workers in larger enterprises because small-scale employers usually lack knowledge of occupational health; even if the employers are interested in workers' health and safety, they may not be financially capable of providing preventive health care for their employees. Such small-scale employers may have a limited capacity to pay adequate wages and often employ women and children and

partially disabled persons. Thus more occupational health problems may be encountered than in larger enterprises.

It may be possible to establish occupational health centres, or group occupational health services, to serve several small industries if the factories concerned pool financial resources in a cooperative scheme, as for example in the Republic of Korea. Such group services can be run by occupational health professionals where available, but quite often primary health workers may be the most practicable alternative. The group service should undertake health promotion activities as a distinct responsibility, along with curative, protective, and preventive care.

Where plantation or large-scale agriculture is practised, health services for workers may already exist, but are mainly curative and protective. Health promotion concepts and activities should be introduced into these health services.

Whenever a health promotion programme is introduced for groups of workers in paid employment in a developing country, its effects are likely to go beyond the workers to their families and the community. Such workers are usually looked to for guidance by the rest of the community, and therefore if they carry health information messages and have an exemplary healthy life-style, the community will benefit.

Where small-scale or subsistence agriculture predominates, most workers are self-employed. In this case, occupational health care has to be integrated into community health programmes. It has been shown in a number of countries that primary health workers can provide occupational health care for agricultural workers. This Committee believes that health promotion activities for agricultural workers should also be undertaken by primary health workers.

In industrialized countries, health promotion programmes are needed to tackle such problems as smoking, alcohol and drug abuse, overnutrition, and lack of exercise (see section 6), whereas in developing countries there are other problems that need consideration, for example undernutrition, poor environmental sanitation, communicable diseases, and the effects of mechanization and the increasing use of chemicals in agriculture. In a special way, health promotion programmes for workers in developing countries have to highlight, from national to individual level, the positive relation between work and health, in both social and economic terms, because this is not yet generally appreciated.

8.1 Underserved working populations

Several population groups are not properly covered by national health services. At the time of the seventy-ninth session of the WHO Executive Board held in Geneva in January 1987 (81), the following groups were identified as exposed to particular health risks, and at the same time underserved by health services: agricultural workers, people employed in small-scale industries, maritime workers, construction workers, working children, and housewives.

These groups deserve the special attention of health services in all countries, but particularly in developing countries where primary health care services do not cover all geographical areas, or are not yet firmly established or well staffed and equipped.

8.1.1 *Agricultural workers*

In contrast to workers employed in urban areas, agricultural workers frequently lack essential health services and their interests are largely overlooked in occupational safety and health legislation. Their access to health services may be limited because of distance, difficulties in communication, or economic constraints. In many instances, traditional attitudes and illiteracy also play a role in restricting contact between agricultural workers and the health services.

Agricultural work is not safe, and many of the health problems faced by those employed in this sector arise from their work. New techniques and processes have been introduced to improve agricultural productivity, and the use of modern machinery, fertilizers, and pesticides has become extensive, not only in industrialized countries, but also in most developing countries. This technological progress has not been matched by the provision of accurate information on new occupational hazards, the development of occupational health services, or the introduction of appropriate programmes to prevent health problems.

In developing countries, the health problems associated with new agricultural techniques have been added to the already-existing problems of work-related accidents, undernutrition, and communicable diseases, such as zoonoses, tetanus, malaria, and schistosomiasis; in many tropical countries, bites from snakes and arthropods may also be occupational health risks.

Workplace health promotion for agricultural workers is not easy, because these people are exposed to a great variety of occupational

health risks and work in many places: farms, fields, gardens, etc. In addition the target working population may be diverse, since agricultural work may involve all members of the family, including children. Furthermore, agricultural workers (who constitute the great majority of the population in many countries) have limited access to the mass media, and hence to certain forms of health information, and are usually not provided with educational programmes or health inspections.

Health protection and promotion efforts for agricultural workers may be directed towards:

(a) expanding the coverage of primary health care to all rural areas of the country, and improving the quality of this care;

(b) employing occupational health personnel to monitor and control the work environment, particularly in areas where agricultural mechanization is expanding and new chemicals are being introduced;

(c) providing workers with better information on old and new occupational health risks, through mass media, health education programmes conducted by primary health personnel, teachers, local leaders, women's organizations, etc.;

(d) training and retraining primary health care staff in the basic occupational health problems relevant locally, and providing them with educational audiovisual materials, manuals, etc.; and

(e) gradually establishing occupational health services (or expanding existing ones) based on, and closely linked to, primary health care.

These processes may take a long time, particularly in developing countries. However, the spreading of primary health care, particularly to rural areas, promises a breakthrough in health protection and promotion for agricultural workers, despite the problem of illiteracy, which also needs to be tackled.

8.1.2 *Small-scale industries*

In small-scale industries, working conditions are generally poor, sanitary provisions are often lacking, and medical and first-aid facilities are frequently non-existent. In addition, hours of work may be long, wages low, and workers' experience in safety matters limited (81).

Health promotion activities appropriate for workers in small-scale industries will be similar to those suggested for agricultural workers.

8.1.3 *Construction workers*

Construction workers are also exposed to a variety of occupational health hazards. There is a special risk of work-related accidents, and the incidence of work-related diseases affecting the musculoskeletal system is high.

In the planning and implementing of health promotion activities and programmes for construction workers, special stress should be put on accident prevention. Since many construction sites are located in development areas, availability of food and shelter may be a problem. In such situations, special supplies and free or low-priced drinks and meals should be provided to workers by the management, or by workers' cooperatives.

First aid should be available at the workplace, and for large groups working on construction sites for long periods of time, mobile health teams should be organized, with a link to the nearest health institution. In addition, the provision of safe water supplies and preventive measures, such as vaccination and malaria prophylaxis, will be essential health promotion activities.

Health education should increase construction workers' awareness of the specific occupational and other health risks to which they are exposed, and should motivate them to take better care for their health.

8.1.4 *Maritime workers*

For those who work at sea, including sailors and fishermen, the ship may be a working place and a "home" for long periods of time. These workers may be exposed to various occupational hazards, such as extremes of climate, accidents, the risk of drowning, noise and vibration, toxic substances, heavy physical loads (for example if they are fishermen), and lack of physical exercise (for example if they are officers or radiooperators). There may also be social factors affecting health, such as separation from home and family, lack of recreation and opportunities for rest, and activities increasing the risk of contracting sexually transmitted diseases.

Much can be done to protect and promote the health of those who work at sea through international agreements for providing medical care and health protection.

Appropriate health protection and promotion measures include: (1) improving health care on board ship, for example by (a) training a crew member to provide primary health care, (b) training all crew members in survival after shipwreck, and (c) improving "radio-medical" services by training the captain or mate in reporting symptoms and signs of diseases to a shore-based doctor; and (2) alleviating the pressures of long working hours and deprivation of family life by more frequent exchange of crews, for example in deep-sea fishing vessels.

9. GAPS IN KNOWLEDGE AND EXPERIENCE

This review has identified workplace health promotion as a new dimension of activity for occupational health services that goes beyond their classical role, which has been limited to the control of occupational diseases and injuries. There are, however, a number of gaps in knowledge and experience related to workplace health promotion that require further research and action. These are summarized below.

It is generally agreed that, when health and safety hazards at work are under control, physical work may contribute to physical fitness and mental work may be psychologically gratifying. Indeed, specially designed work methods have been used to rehabilitate the partially disabled. There is a need, however, for more information about the contribution of different types of work to health.

The ergonomic design of work processes and tools to suit the physical and physiological capacities of female workers is needed. It should be possible to introduce adaptable machinery that can be adjusted to the needs of female operators to enhance their productivity and prevent fatigue and injuries.

Although there is some information on economic losses associated with disease and injury in working people, there have been no systematic cost/benefit studies of occupational health programmes or of health promotion programmes for working populations. If positive, the results of such studies could help in motivating industrial establishments to introduce health promotion programmes.

Psychosocial factors at work and their effects on health are increasing in importance in industry with the wider use of modern technology. Although methods for identifying and assessing physical and chemical hazards at work are well established, few suitable methods are available for analysing work demands and evaluating associated psychosocial stressors and their effects on workers. Questionnaires and the biochemical estimation of catecholamine concentrations in the blood are currently used for this purpose, but they lack the necessary specificity and accuracy. More research is therefore needed to develop better methods of evaluation.

More research is also needed on the pathogenesis of symptoms associated with smoking cessation and on effective therapy. People who stop smoking may suffer from anxiety and depression; these can be associated with overeating, which can itself cause health problems.

The pathogenesis of alcohol and drug abuse syndromes has been satisfactorily studied. However, there is not enough information on withdrawal symptoms and their causation at the biological level. Therapy for withdrawal symptoms is available to a limited extent, but not enough is known about the pathogenesis of serious withdrawal symptoms, which may include convulsions and cardiac arrest. More research is needed on this, and on the prevention of relapses after withdrawal, which appear to be rather common.

Experience in health promotion programmes has so far been limited to the large and medium-sized manufacturing and service industries. It is necessary to extend such programmes to other occupational sectors. However, work methods and associated health hazards vary for different working populations, for example for maritime workers, miners, emigrant workers, and construction workers, so health promotion activities should be adapted accordingly.

This report has repeatedly pointed to the need to integrate health protection and safety programmes with health promotion activities. In several occupational sectors there are serious health hazards that require the attention of people with specialized skills. Appropriate health protection and health promotion approaches for these sectors need to be identified.

10. RECOMMENDATIONS TO WHO

Workplace health promotion is in its initial stages of development. Given what has been learned about the ability of health promotion programmes to control various risks to health, such programmes seem to have substantial potential to improve the health of workers, their families, and their communities. Much remains to be learned about that potential, and much needs to be done to exploit it. WHO has a substantial opportunity to act in this respect. Noted below are some of the possibilities for action that the Expert Committee recommended should be considered by WHO in relation to workplace health promotion.

1. Efforts should be made to draw on the experience of the small but growing number of experts who have played important roles in the development and evaluation of health promotion efforts in the workplace.

2. Various critical steps in improving the capabilities of WHO Member States to stimulate workplace health promotion can be identified. These include: clarification of the role of governments in workplace health promotion; preparation of technical papers on various aspects of implementation of health promotion programmes; development of a resources centre to facilitate the exchange of information among interested parties; designation of selected WHO Collaborating Centres to provide technical assistance on health promotion issues; and sponsorship of regional meetings to discuss the practical problems of implementing workplace health promotion programmes under differing conditions.

3. Training requirements for health promotion need to be clarified and steps taken to facilitate the identification and exchange of personnel who might serve as resources for health promotion programmes. Model teaching materials are required to illustrate the type of health education that might be used in health promotion programmes with a high probability of being effective.

4. Regional and national research on workplace health promotion should be encouraged and collaborative approaches promoted.

5. WHO could do much to advance interest in and understanding of workplace health promotion by developing and implementing a model programme for WHO employees.

11. GENERAL RECOMMENDATIONS

1. National governmental and nongovernmental organizations responsible for or interested in workers' health should encourage the planning, implementation, and evaluation of appropriate and innovative health promotion programmes for workers. Special emphasis should be placed on underserved groups in industrialized and developing countries.

2. National governments should recognize health promotion as an essential component of occupational and other health services for workers and adopt appropriate health policies. These policies should involve all parties concerned with the health and safety of workers, not only in the health services but also within management and in workers' organizations, including unions.

3. Governments should, wherever possible, provide resources for implementing these policies. This could include supporting research, education, and training, providing direct health services, organizing new programmes, and setting an example in state-run enterprises.

4. Employers and managers should recognize that health promotion in the workplace is in the interest of both employers and workers, and should take the initiative in collaborating with workers and workers' representatives to implement health promotion programmes.

5. Workers and their representatives should take every opportunity to encourage and support health promotion at the workplace.

6. Available information indicates the value of health promotion programmes for workers' health. However, more research should be done on the development of intervention methods and their evaluation, and on the application of health promotion programmes to different populations.

7. All sectors of the education and information communities should include workers' health promotion in their educational programmes for (a) managers at all levels and (b) workers and their representatives.

8. Training in health promotion should be provided at the undergraduate and postgraduate levels for health professionals, particularly for those dealing with workers' health. All health personnel dealing with workers' health should acknowledge their responsibilities for health promotion and should make every effort to fulfil them.

9. The media should be encouraged to publicize existing and new health promotion programmes for workers. Occupational health specialists should assist the media by providing information about innovative programmes.

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